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Examining voice and choice in online learning

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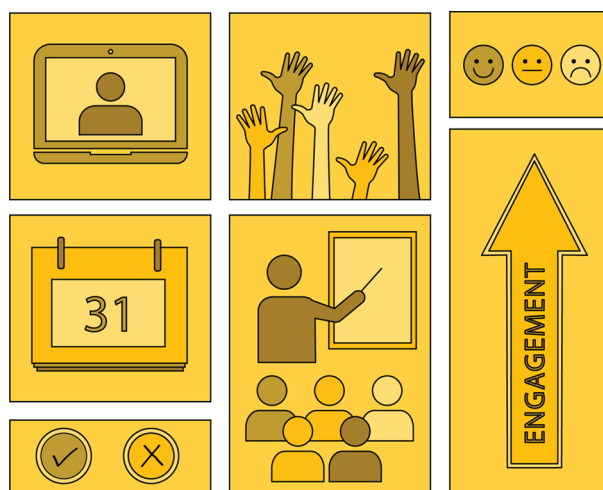
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Abstract

Maximizing student engagement and learning in online courses is critical. The purpose of this study was to determine the nature of how and why graduate-level online students chose learning strategies and how it impacted their perceived levels of engagement. The researchers offered students four strategies for learning content. Qualitative and quantitative data were collected across four quarters. Findings summarized students' perceptions of their learning and engagement when given a choice on how to engage in the content. Most participants chose asynchronous methods for learning the content, citing time constraints as the primary reason for not choosing synchronous methods of learning. When participants had autonomy to learn content and engage with others in a manner they deemed useful, they better understood the content and remained highly engaged in course activities. Participants who chose to interact with the content asynchronously also remained highly engaged.

Keywords: Engagement, Online learning, Synchronous, Asynchronous, Student issues, Pedagogy, Tools, Support

Graphical Abstract



Introduction

Online learning across all levels in education is being widely discussed with a renewed sense of urgency. Educators, policymakers, students, and other stakeholders around the world are accepting that distance learning may be a viable way for students in the K-12 schools and in higher education to meet their educational goals. While the notion of utilizing various synchronous and asynchronous platforms for distance learning is not novel (Seaman et al., 2018), both instructors and students tend to struggle with various components of online learning and teaching (Kebritchi et al., 2017). According to Kebritchi et al. (2017), many online students may have difficulty participating in an online course and meeting expectations due to a lack of readiness and/or experience with the learning format. Once they are finally able to find their way around the slew of resources, instructions, and assignments, engaging with these materials meaningfully may be a daunting and frustrating task. Meanwhile, professors who are used to teaching face-to-face (predominantly lecture-based) attempt to simply replicate their teaching style in an online environment and organize and present their material without adjusting for online learners (Arasaratnam-Smith & Northcote, 2017). Key in the transition to online learning is to ensure the content being taught is rigorous and aligned to best practices. Developing best practices starts with understanding the underlying theory associated with effective online teaching and learning.

The purpose of the study is to understand the ways in which students choose to engage in learning online and how it impacts their perceived levels of engagement in the course. Much of the previous research in analyzing the effectiveness and engagement of students in online learning tends to rely on instructor-instigated methods to increase social presence (Garrison, 2007). The researchers of this study recognize the importance of the adult learner as self-directed and attempt to highlight this need by providing choices that allow the individual to learn content in a manner befitting their needs. The aim of this study was to examine two aspects of student autonomy: (1) the ways in which students chose to learn the content, and (2) how they engaged in peer and instructor interactions (social presence). Participants included graduate level students enrolled in either a teacher preparation or school administrative preparation program. The researchers wanted to understand how students, when given the autonomy to learn content in a manner they see fit, would make choices to maximize both their learning and engagement in course content. Using NVivo text analysis program (QSR International, 2020), the researchers found that participants felt engaged when given opportunities to interact and communicate with their peers. Furthermore, even though students opted for more asynchronous learning options compared to synchronous, they remained highly engaged in their course content.

Social presence in online learning environments

Strategic use of technology-based resources must be utilized to ensure ease of student participation and collaborative learning (Palloff & Pratt, 2003) which are key elements of student engagement. Characteristics of student engagement include opportunities for collaboration and interaction with one's instructors and peers (Paulsen & McCormick, 2020). In online learning, there are three aspects of an online community of

inquiry: social, teaching, and cognitive presence (Garrison, 2007) that may impact student engagement. Thoughtful consideration of this model includes knowing the audience, deciding the ways in which the instructor will interact with the students in the course, exploring how the participants will receive feedback from the instructor and one another, and identifying whether the course is designed as fully online or blended (Shearer, 2003). Shearer (2003) suggested that although students choose to take online classes for the purpose of autonomy, it is also essential to ensure they can complete the course despite oftentimes isolated learning environments. This dichotomy generates inherent challenges when creating optimal online experiences with interactions between individuals within the online community as a critical component for learning the content (Garrison & Cleveland-Innes, 2005). Designing engagement strategies to maximize learning is paramount for online course development. Moore (1993) characterized three aspects of interaction within the learning environment: learner-learner, learner-instructor, and learner-content that allows a course designer to optimize engagement. This is a useful framework to consider, however understanding the effectiveness of specific strategies within each of those three dimensions could optimize student learning and engagement. Another way to consider this implication as Kim et al. (2021) found, is that students are also more likely to be self-directed if they feel engaged with the content. To inspire engagement through recognizing an adult learner as self-directed, course designers can consider Moore's (1993) recommendations for interaction through careful design of the elements within a course that promote greater levels of engagement with both the content and with peers and the instructor.

There is a growing body of research that focuses on strategies for improving presence in the classroom through initial engagement strategies (Bonk & Zhang, 2006; Pi & Hong, 2017). Lecture-capture presentation is a common strategy used to teach content online, yet studies focused on exploring student engagement through such strategies yield mixed results (Edwards & Clinton, 2019). A common issue students encounter with asynchronous lecture presentations is the somewhat passive nature of learning and inconsistent engagement in a learning community (Wood et al., 2020). In fact, Saltan (2017) found that teacher education candidates preferred a blended format and choice to attend either online or face-to-face sessions for different purposes. They found that students value the convenience and flexibility found in the online setting, yet those who chose face-to-face did so because they desired the sense of community and belonging. In fact, participants shared that they saw more value in the face-to-face settings, yet still chose to take the course online due to the flexibility and alignment of their own schedules during graduate school that online learning offered. In a sense, the opportunities online learning offered outweighed the benefits of synchronous learning. The choices adult learners make to maximize their learning outcomes given their unique life challenges to engaging in coursework (time constraints, careers, families, etc.) don't typically exist for undergraduate students. Therefore, constructing an online learning environment conducive to the adult self-directed learner is critical.

When students are either not given a choice to attend a face-to-face course or not interested or able to, instructors are charged with utilizing their knowledge of social presence to ensure students feel a sense of engagement and community within an online setting. One consideration to make as instructors introduce new content online is to

consider ways in which students are learning new content from the onset of the instructional unit.

Adult learning theory

Knowles (1980) contributed to a growing body of research on adult learning theory (andragogy). He summarized several considerations for designing opportunities for engaged communities of learning. He emphasized the importance of internal processes that motivate the learner for inquiry-based exploration relevant to their needs and context (p. 56). The adult learner covets opportunities to be self-directed, engage in experiential and transformational learning (Cercone, 2008). Brookfield (1991) noted other variables that contribute to effective andragogy, including context, political atmosphere, and group dynamics. These variables contribute to an overall climate of learning that ought to be considered in online learning environments. Brookfield also cautioned that the self-directed adult learner might require a level of scaffolding of content and involvement of other learners in developing metacognitive strategies. This is a critical consideration when designing opportunities to engage in both content and peers in a course of learning. While the adult learner may exhibit a more intrinsic sense, or motivation to learn, external supports still need to be in place for this to occur. Promoting engagement strategies also allow for opportunities to reflect on one's individual learning needs and to better understand how to meet their learning objectives. Through this type of reflection, the adult learner can decide their learning needs and interests and identify the ways in which they are able to achieve learning outcomes. This is one form of self-directed learning that Knowles and others have proposed (Merriam, 2001). Given a set of learning expectations within a course that is conducive to encouraging and promoting a sense of autonomy, the adult learner may be motivated to decide the ways in which they are able to learn best. As Merriam (2001) wrote, the self-directed learner is able to "engage in independent projects, student-directed discussions, and discovery learning" (p. 10). Understanding the theory or practices of adult learning and how they relate to the adult as a more self-directed learner creates a need to consider the important implications for effective course design that encourage and promote these practices.

By understanding these andragogical principles proposed by Knowles (1980), e-learning instructors will be better equipped to create effective learning opportunities that maximize learner self-reflection, collaboration, and engagement with the content. Online courses must be engaging, inclusive of all learners, and innovative (Tainsh, 2016). Yet, this will occur only when instructors understand the diversity of students and can offer them choices in learning the content and engaging with their peers and instructors. Designing a course without considering the self-directed nature of the adult learner is inadequate. The challenge is to effectively design a class that allows student autonomy through flexible learning options, while also ensuring a rigorous learner experience aligned with the educational goals of the course.

Literature review

Historically, students, staff, faculty, and college administrators often perceived online learning negatively for various reasons and thus have been hesitant to venture into offering this option to students in their institutions (Bagasra & Mackinem, 2019). However, in

2020, the rapid move to fully online learning required most instructors in higher education to make radical shifts in their content delivery and teaching face-to-face was simply not an option. Now, as many institutions are permitting instructors to choose whether they wish to return to the traditional classroom settings, instructors have new experiences with which to reflect on the long-term efficacy of their content delivery options.

In the past, choosing online learning as an option for taking classes or earning a degree in higher education offered flexibility and choice without the need to meet face-to-face (Paulsen & McCormick, 2020). Some argue that online learning in higher education is critical to the long-term success of post-secondary institutions (Bowser et al., 2017). Previous literature called into question the viability of online learning to effectively meet the needs of learners researchers challenged the notion that online learning creates a similar experience in terms of rigor and engagement compared to traditional classrooms (Gaskell & Mills, 2015). However, other studies found that those with negative perceptions typically stem from a lack of experience with online courses in higher education (Allen & Seaman, 2014).

Understanding effective instructional methods for online teaching cannot happen without recognizing the rapidly changing needs of students enrolling in these courses (Botton & Gregory, 2015). A synthesis of research studies indicated three aspects of the learner (expectations, readiness, and engagement) that impact their success in an online course (Kebritchi et al., 2017). These three aspects ought to be considered as course designers and instructors are building e-learning courses, whether blended or fully online. Developing best practices for learner-centered andragogy within online learning settings is key to ensure learner success. What is also interesting about these three characteristics is that together, they help to support the self-directed nature of the adult learner in an almost cyclical nature; an adult flourishes as a self-directed learner if given the opportunity to engage in experiences within a course that offers relevance.

Proper planning must be given to an online course to ensure high levels of learning (Liu et al., 2020). Additional considerations for learner success include recognizing how motivation and imagination are essential for acquiring knowledge. A literature review of factors influencing learning outcomes found conflicting results regarding formats that produce better learning outcomes (Nortvig, et al., 2018). In fact, Nortvig et al. (2018) found that the format of the learning (fully online, blended, or face to face) revealed no learning advantages inherent in the format itself. However, the interactions between students, teachers, and content consistently produced effective learning outcomes. These are significant findings given the choices available for instructional delivery, especially over the past few years. Relying on the argument that face-to-face is inherently better is no longer relevant given recent studies that have shown that the content and experiences students participate in within the course may in fact outweigh the delivery method (Edwards & Clinton, 2019; Kim et al., 2021; Martin & Bolliger, 2018). Kebritchi et al. (2017) raised an important point about the learners' ability to learn and interact effectively with course content; learners need to be able to determine their own readiness and ability to learn content. This includes developing a sense of self-efficacy related to understanding complex tasks and developing effective communication skills. Kebritchi et al. (2017) found that online learners may choose a more individualized approach as they interact with the content in terms of pacing, amount, and sequence of learning activities

that may be advantageous. Blayone et al. (2017) reinforced these findings when they connected a community of inquiry model for students interacting with content that focused on the responsibility of the learner to operationalize new learning. In essence, the online course would be designed with an expectation that the learners are responsible for sharing their creating the learning through authentic engagement with the content and their peers. Of course, the implications of this are that the course itself is inherently relevant and provides authentic learning activities to ensure this freedom in promoting a self-directed approach to achieving the learning outcomes. Richardson and Newby (2006) found that as students gain experiences with online learning, they can take on more responsibility for their own engagement of the content. Again, this is an example of how, in order to promote the self-directed learner as one who is able to choose how to engage in a course that heightens their experiences, the course itself ought to be designed in such a way that promotes the highest levels of engagement; not necessarily through simply qualifying that engagement will be better if the course is synchronous or face-to-face compared to online or hybrid. Considering the unique needs of the adult learner is the critical component of effective course design. As Garrison and Cleveland-Innes (2005) noted, interactions alone are not enough to sustain a community of inquiry in terms of advancing quality learning outcomes. They discuss “approaches to learning” (p. 137) that consider both student motivation and strategies for learning.

Research questions

Building from the works of Garrison and Cleveland Innes (2005), Bonk and Zhang (2006) and Pi and Hong (2017), the researchers explored whether students, when given the autonomy to engage with the course materials in a manner they have chosen, would still learn the content presented and perceive it as engaging. Bonk and Zhang (2006) proposed four components to their model: reading, reflecting, displaying, and doing. Furthermore, Pi and Hong (2017) found that students learn best when the instructor used PowerPoint slides during their instruction in both synchronous and asynchronous modes. In the current study, the researchers offered the students four choices to engage with the content. All four choices later described in the methodology aligned with this subset of prior research. As described by Garrison and Cleveland (2005), there are many contextual factors that also impact ways in which students engage with both their learning environment and the course content. The researchers in the current study sought to better understand how students prefer to effectively learn the content given the myriad of contextual factors at play. They did not measure social presence as a construct. Rather, recognizing the adult learner as self-directed, the researchers focused on perceived participant engagement and learning of the content when given choices. Finally, they examined whether this metacognitive and self-directed process allowed students to be more aware of how they learn by tracking whether they engaged in content differently over the course of a quarter. The research questions are:

1. What were the primary methods participants engaged in to learn content each week?
2. Why did students choose their preferred method of learning and engagement?
3. How did students perceive their chosen method helped or hindered their ability to learn and feel engaged in the content?

4. In what ways did students modify their learning to increase their level of engagement throughout the quarter?

Method

Design

The design of the study focused primarily on the initial content delivery methods and students' perceived learning throughout a quarter. Students were able to select one or more ways to learn the content (given four options) and took a survey weekly to reflect on their perceived levels of learning and engagement. In essence, this study focused on the learner as self-directed to determine whether providing choice and a greater level of autonomy as a regular part of the course structure impacted their levels of learning and engagement. The datasets generated during and/or analyzed during the current study are available from the corresponding author on reasonable request.

Participants

Participants in this study were students in graduate programs enrolled in a private university in the state of Washington. All students were enrolled in various types of teacher education preparation and school administrative preparation programs within the School of Education. Some courses were for initial teacher certification, while others catered toward school administration. Course titles can be found in Table 1. There were 42 participants from two online courses taught across two quarters.

Context

Participants rated their social presence in the course by reflecting on their level of engagement with the course activities. This mixed-methods exploratory study used Likert-type scales for collecting quantitative data and a qualitative design to further understand student choice (MacMillan, 2004). The student approach to learning (SAL)

Table 1 Student demographics

Courses	Communication and collaboration	Learners in context
Gender (%)		
Male	15.4	56.2
Female	84.6	43.7
Race (%)		
White	84.6	75
Asian	7.7	18.7
Unknown	7.7	6.2
Age (%)		
20–24	4	12.5
25–29	19	37.5
30–34	27	6.2
35–39	23	6.2
40+	27	31.2

position (Fox et al., 2001) was used to conceptualize the types of questions that would be in this study. As noted by Fox et al. (2001) the SAL approach considers the student's context within the learning process that considers the "deep approach" to learning (p. 512) that the authors of this current study were interested in seeking further insights. While the Study Process Questionnaire (Biggs, 1987) is a commonly used questionnaire for gaining insights regarding students' approaches to learning (Fox et al., 2001), the questions lacked specificity regarding online learning environments using specific tools. Therefore, the authors chose to craft specific questions based on the SAL approach but in alignment with the previous study conducted by Garrison and Cleveland-Innes (2005) and Richardson and Newby (2006) who both used the Study Process Questionnaire in their own studies of student interactions within an online learning environment. The questions included in this current study sought to uncover the motivations of students as self-directed learners. The open-ended questions in this current study are similar to those in a study conducted by Martin and Bolliger (2018) that sought to discover students' perceptions of valuable engagement strategies for online learning. In that study, students were asked to identify the most valuable strategies they found helpful with their levels of engagement as online learners (p. 213) which is similar to the open-ended survey items in this current study.

Participants had four choices in ways they could learn and engage in the content each week. The instructor conveyed the expectation that participants engage in learning the material by choosing any one or more of the four modalities offered:

- Participate in weekly synchronous meetings via Zoom,
- Listen to the voice over lecture via PowerPoint,
- Listen to the lecture and post comments/questions on the discussion forum within the voice over lecture platform (Panopto), or
- Read the PowerPoint slides and transcripts of the presentation.

The data was collected from two courses following institutional review board (IRB) approval granted in March 2019. The course *Learners in Context* taught in summer 2019 lasted 8 weeks. The course *Communication and Collaboration* taught in autumn 2019 lasted ten weeks. The course instructors presented four options to students to engage in weekly content. Participants could select one or more of the methods they believed would effectively allow them to learn the content with no grade value or other evaluative action taken based on their choice.

The instructors ensured the content in all four of these modalities was the same. For example, if students participated in a synchronous Zoom meeting, they would be accessing the same content as those who chose to listen to the lecture voice over PowerPoint.

Instrumentation

At the end of each week, participants completed a survey that was used for analysis in this study. The survey items consisted of three Likert-style items and two open-ended questions (MacMillan, 2004). The participants were asked to choose one or more of the four methods they used to engage in the content. These items were included within the students' online course as the last activity to complete in the given module of learning.

The responses were reviewed and analyzed after the courses were over to ensure no change in content design was made based on the students' responses to the survey items. The survey items and instructions are shown below. Students were able to select more than one.

Survey questions:

To further understand your engagement with this week's content, please respond to the prompts below. You are encouraged to be honest. There are no right or wrong responses.

1. This week I engaged in the content by:
 - A. Participating in weekly synchronous meetings via Zoom
 - B. Listening to the lecture voice over PowerPoint
 - C. Listening to the lecture and post comments/questions on the discussion forum within the platform
 - D. Reading the PowerPoint slides and transcripts of the presentation
2. In 1—2 sentences, explain why you chose the method(s) for learning/engaging in the content for the module?
3. Rate how the method(s) you chose help or hinder your level of engagement?
 - A. High engagement
 - B. Middle engagement
 - C. Low engagement
4. Rate how the method(s) you chose help or hinder your ability to learn the content?
 - A. I learned a great deal
 - B. I learned just enough to get the gist of the content
 - C. I did not learn anything based on the method selected
5. Briefly explain what did you do differently, if anything, to increase your level of engagement with the content this week?

Data analysis

Data analyses involved both inductive and deductive coding for the qualitative, open-ended responses (Creswell, 2017) and descriptive statistics for the quantitative responses. The researchers used deductive coding to initially develop the first two themes, content and engagement, which are directly related to the research questions. Upon initially analyzing the qualitative responses, the researchers discovered two additional themes, study habits and time constraints. For research question one, frequency counts were used to identify the method(s) participants used to engage in the content and reported the results in Table 2 as percentages. Research question two was addressed using the responses from survey item two. When a response dealt primarily with learning content, it was coded as content. When a participant response primarily addressed

Table 2 Participation count by week

	Week 1	Week 2	Week 3	Week 4	Week 5
Method(s) of learning	101	98	85	89	66
Level of engagement	57	38	40	41	38
Ability to learn content	40	42	38	42	38

engaging with peers, the instructor, and/or the content, the response was coded as engagement. When a participant response described organizational or study habits, the response was coded as study habits. When participant response addressed time management issues, it was coded into the theme of time constraints. Additionally, the researchers used NVivo® text analysis software (QSR International, 2020) to cross-tabulate the codes with weeks and themes. The researchers addressed research question three using responses from survey items three and four. Like survey item one, the researchers used frequency counts to measure students' perceptions of how they learned and engaged in the content based on the method(s) chosen. The frequency counts were converted to percentages shown in Tables 3 and 4.

Research question four was addressed by analyzing responses from survey item five. Participants explained what they did differently each week to increase their level of engagement with the content. Deductive coding methods were used to place each response into one of the four themes identified in research question one. When a response dealt primarily with learning content, it was coded as content. When a participant response primarily addressed engaging with peers, the instructor, and/or the content, the response was coded as engagement. When a participant response described organizational or study habits, the response was coded as study habits. When participant

Table 3 Frequency of method(s) chosen each week by percentage

	Week 1 (%)	Week 2 (%)	Week 3 (%)	Week 4 (%)	Week 5 (%)
A	8	10	9	11	7.50
B	32	31.60	39	32.50	32
C	9	7	4.50	6.50	9
D	28	29.60	26	30	35
B,D	11	12	10.50	11	9
A,B,C,D	1	3	0	1	0
B,C,D	6	2	3.50	1	6
A,B,D	3	3	4.50	2	0
A,B	3	1	2	3	1.50

A = Participate in synchronous meeting via Zoom; B = Listen to the lecture voice over PowerPoint; C = Listen to the lecture and post comments/questions on the discussion forum within the platform; D = Read the PowerPoint slides and transcripts of the presentation

Table 4 Levels of perceived engagement in course activities

	Week 1 (%)	Week 2 (%)	Week 3 (%)	Week 4 (%)	Week 5 (%)
Highengagement	31.50	39.50	45	44	60.50
Middle engagement	38.50	52.50	47.50	54	34
Low engagement	30	8	7.50	2.50	5

Table 5 Levels of perceived ability to learn the content

	Week 1 (%)	Week 2 (%)	Week 3 (%)	Week 4 (%)	Week 5 (%)
I learned a great deal	72.50	64	76	66.50	71
I learned just enough to get the gist of the content	27.50	36	23.50	33	29
I did not learn anything based on the method I used	0	0	0	0	0

Table 6 Frequency of responses for each code

	Week 1	Week 2	Week 3	Week 4	Week 5
Content	18	16	14	16	23
Engagement	10	12	5	10	6
Study habit	8	5	5	3	1
Time constraints	12	14	12	12	3

response addressed time management issues, it was coded into the category of time constraints. Please see Table 6 for the frequency count for each theme.

Results

Participants were given choices for how they learned the content. Noted earlier, participants were invited to use one or more of the following methods for learning the content:

- Participate in synchronous meeting via Zoom,
- Listen to the lecture voice over PowerPoint,
- Listen to the lecture and post comments/questions on the discussion forum within the platform, or
- Read the PowerPoint slides and transcripts of the presentation.

The results are displayed in the following tables and labeled Week 1 to Week 5. Since the course *Learners in Context* was eight weeks long and *Communication and Collaboration* was ten weeks long, Weeks 1 and 2 in the tables represent distinct modules of learning early in the quarter, Weeks 3 and 4 represent distinct modules of learning in the middle of the quarter and Week 5 represents a distinct module of learning at the end of the quarter. Table 4 indicates the participation frequency. The frequency data were based on the participants selecting one or more of the methods for learning the content.

Table 3 shows the results for survey item one: This week I engaged in the content by (given four choices). The participants selected the method(s) for learning the content each week. Since 42 participants were in this study, many selected multiple methods for learning the content.

Participants rated their level of engagement (survey item three) based on the method(s) they chose for learning the content each week. Table 4 shows the results for the 42 participants.

Participants also rated their level of learning the content (survey item four) based on the method(s) they chose each week. Table 5 shows the results for the 42 participants.

Qualitative responses from survey item five were analyzed. Deductive coding methods were used and placed into one of four themes: content, engagement, study habits, and time constraints. There were 205 total codes. Table 6 describes the frequency count of each coded response.

In survey item 2, the participants were asked to explain why they chose the method(s) for learning/engaging in the content for the module. Their responses were coded using the NVivo text analysis program (QSR International, 2020) and the method(s) selected for learning the content. As shown in Table 3, most participants chose to listen to the lecture voice over PowerPoint (B) or read the PowerPoint slides and transcripts of the presentation (D) or both methods. Throughout the quarter, common reasons for choosing both methods were to make efficient use of their time to learn the content and utilize their learning style. One sample response that captures this was, "I could print these out and work at my own pace, this is the most efficient for me and my own personal learning style. I thrive without time restraints so I can constantly analyze and think deeper on the material and definitely the visual supplements are a huge support for my style of learning."

Participants who were not able to participate in the synchronous meetings via Zoom (B) noted time constraints as the ultimate reason, "I could not meet the time constraint to do the Zoom meeting and therefore participated in the other methods for learning and engaging in the content. I also like to be able to replay and hear the content over if necessary." Those who chose to participate in the synchronous meetings (A) and read the PowerPoint slides and transcripts (D) felt they were able to use the synchronous time to ask questions and later review the content as needed, "I appreciate the 'face-to-face' interaction of the Zoom meeting and the opportunity for questions. Reading the PowerPoint was an efficient review of the materials."

A cross-tabulation between the weeks and themes determined patterns in modalities the participants chose each week during the course. Tables 7 and 8 show the cross-tabulation percentages of coded responses by category and weeks. Table 7 shows the distribution and comparison of coded themes by week. At the beginning of the quarter, Weeks 1 and 2, content was the highest while study habits remained the lowest. By the middle of the quarter, content remained the highest, followed by time constraints with engagement dropping significantly. By the end of the quarter,

Table 7 Cross-tabulation between weeks and themes by row

	Content (%)	Engagement (%)	Study habit (%)	Time constraints (%)
Week 1	37.5	20.83	16.67	25
Week 2	34.04	25.53	10.64	29.79
Week 3	38.89	13.89	13.89	33.33
Week 4	39.02	24.39	7.32	29.27
Week 5	69.70	18.18	3.03	9.09

Table 8 Cross-tabulation between weeks and themes

	Content (%)	Engagement (%)	Study habit (%)	Time constraints (%)
Week 1	20.69	23.26	36.36	22.64
Week 2	18.39	27.91	22.73	26.42
Week 3	16.09	11.63	22.73	22.64
Week 4	18.39	23.26	13.64	22.64
Week 5	26.44	13.95	4.55	5.66

however, engagement increased. Study habits continued to decrease, as did time constraints. Content drastically increased by the end of the quarter.

Table 8 shows how each theme changed over the quarter. The frequency of content remained steady over the quarter, with an increase by the end. Engagement remained steady at the beginning of the quarter, decreased in the middle of the quarter, and fluctuated towards the end of the quarter. The frequency of study habits steadily decreased from beginning to end of the quarter. Time constraints remained steady throughout the quarter then drastically decreased by the end.

The researchers examined whether a metacognitive process for choosing the method(s) for learning the content would allow the students to become better learners over the course of a quarter. In the next section, the researchers will attempt to respond to each research question based on the data collected and analyzed.

Research Question 1

Research question 1 addressed the primary methods participants used to learn each week. Based on Table 5, over 90% of the participants chose an asynchronous method. Each week, about 75% of the participants chose to either listen to the lecture voice over PowerPoint or read the PowerPoint slides and transcripts of the presentation. Additionally, 10% chose to utilize both methods to engage with the content. When given a choice, only 7.5 to 11% opted to meet synchronously via Zoom. It is worth noting that there was consistency with the participants who chose to engage with the content synchronously. Some participants who joined the synchronous meetings also engaged with the content via one or more of the other methods. Very few students chose to use the discussion board embedded within the voice over lecture platform (Panopto).

Research question 2

To understand why the participants chose a method(s) to learn each week, qualitative responses were coded into four themes: content, engagement, study habit, and time constraint. Data in Table 7 suggests that each week, content was referenced most frequently when compared to the other themes. In fact, by the end of the quarter, the participants focused highly on learning the content while time constraints dropped drastically from 25% in Week 1 to 9.09% in Week 5. Similarly, while content remained the highest and relatively stable each week, study habits decreased by the end of the quarter. These results reinforce the notion that when students are given autonomy to choose their method of learning, they will most likely choose their perceived best option. Once the method

chosen remains effective, they continue to utilize that same method for the remainder of the course.

Illustrated in the sample responses in Table 7, some participants expressed interest in joining synchronous meetings to feel more engaged. Those who chose the synchronous method felt they learned best from personal interactions. Participants who preferred to read the PowerPoint notes and listen to the voice over lecture chose this option because they were able to re-read the notes and listen to the lecture as often as they wanted and at their own speed and time. When participants began preparing for their final projects and assignments, many used this option to revisit the contents from earlier in the quarter.

Research question 3

The level of participants' perceived engagement shown in Table 4 suggests they felt highly engaged over the course of the quarter. In fact, by the end of the quarter, 60.5% selected high engagement, whereas only 5% selected low engagement. The frequency of low engagement drastically decreased from 30% in Week 1 to 5% by Week 5. The data in Table 5 validate that each week, between 64 and 76% of the participants were learning a great deal. The remaining participants indicated they were learning just enough to get the gist of the content over the course of the quarter.

Research question 4

Research question 4 explored ways participants modified their learning strategies throughout the course to increase their level of engagement. Earlier in the quarter, once most participants identified the method(s) they felt effectively kept them engaged, they stayed with the method(s) for the remainder of the quarter. Many also noted that time constraint issues were the driving force in how they learned content. For example, they indicated they would have liked to join the synchronous meetings but could not due to time constraints.

Discussion

The researchers set out to determine whether students, when given the autonomy to learn content in a manner they see fit, would in fact make choices to maximize both their learning and engagement in course content. Several main themes emerged from the analysis that are worth noting. Many participants indicated that opportunities for interaction and communication with their peers was a reason they felt engaged. Even though participants appreciated meeting face-to-face, when given a choice, they typically did *not* choose the synchronous sessions. The findings suggest that even though they opted for more asynchronous learning options, they still felt highly engaged in their course content. Hrastinski (2008) made note of "online participation" being more than simply writing via discussion forums, but rather, "online learner participation is a process of learning by taking part and maintaining relations with others. It is a complex process comprising of doing, communicating, feeling, and belonging which occurs both online and offline" (p. 10). Further, Martin and Bolliger's (2018) study that examined different types of student engagement echoed these findings. They explained that engagement encompasses such a wide variety of activities and dimensions between the content,

instructor, and learner. Conditions for why students feel engaged aren't necessarily solely tied to the one variable of synchronous opportunities to learn the content and engage with peers. Rather, it is a combination of multiple interactions that may account for a student's perception of engagement. In fact, in the study by Martin and Bolliger (2018) learner-instructor interactions was rated as most highly valued compared to learner-learner and learner-content. This current study found that course content allowed the students to feel highly engaged which supports Martin and Bollinger's (2018) study that showed course content itself being students' most valuable strategy for engagement. Activities within the course content can occur both within the online learning platform but also as students organize their course materials, read course-related literature, and collaborate with peers and instructors. Collaboration can include small group discussions using relevant prompts, flexibility in engaging with course content, and preference to have course materials presented in multiple formats as also found in previous studies (Martin & Bolliger, 2018). If the course content is managed in an engaging way, this in and of itself will provide opportunities that enable students to be self-directed learners. It can allow students the autonomy to choose methods that are most engaging to them.

Issues of time constraints, time management, and organizational study habits were unanticipated themes that arose. Participant responses focused on time management issues and better study habits to increase learning and engagement. In fact, these issues tended to be deciding factors in their ability to not only learn content and engage with their peers, but also a main factor in deciding whether they would participate in the weekly synchronous meetings. Many indicated they would have liked to join, but other responsibilities such as family or work interfered with the scheduled time for the meeting. A study by Saltan (2017) found that teacher education candidates preferred a blended format and choice to attend either online or face-to-face sessions for different purposes and therefore, participants in that study chose online due to their life circumstances and the convenience that online learning had to offer. Martin and Bolliger (2018) also found that graduate students tend to face more barriers to when learning via synchronous opportunities. Understanding the adult learner as self-directed is essential in developing a course that meets their unique needs. The content should extend beyond simply offering opportunities for synchronous class sessions. While these may be valuable as a means for growing peer relationships, in terms of maximizing learning and engaging with the content- considering the organization of course materials, maintaining clear expectations, and offering student choice for learning are perhaps the most effective.

One goal of this study was to understand how lecture design related to the level of student learning and engagement. Similarly, Bosshardt and Chiang (2016) conducted a study that analyzed students' choices for whether they attended a face-to-face session or viewed a lecture capture presentation. They found that prior experience with online learning and distance from campus helped with their decision. In their study, there were no significant differences between students who chose a face-to-face session compared to an online session in terms of learning content. However, Bosshardt and Chiang (2016) noted that students in the online course who chose to attend the live lecture scored higher in achievement than those who watched the taped lecture only. They concluded that the method for presenting content is secondary to offering student choice for their

continuum of learning experiences and those who chose to attend the live lectures in addition to their other activities tended to have higher achievement in general. These findings are echoed in the results of the current study and Martin and Bolliger (2018) which highlighted the importance of offering student choice as a means to maximizing student learning.

Students can interact in many other ways with the instructor, peers, or the content besides the initial presentation of content or synchronous meetings. In this current study, when given a choice, participants attended synchronous class sessions at a significantly lower rate than in the baseline where synchronous sessions were mandatory. Similar findings from other studies (Bosshardt & Chiang, 2016; Martin & Bolliger, 2018), confirm the implication that student choice in activities within a well-designed course allow for high levels of engagement with their peers and impact their ability to learn the content effectively. These options included discussion forums, peer learning, small group discussion, small group projects, and other collaborative groups that allowed and promoted social presence. These activities may very well have a greater influence on students' abilities to learn content and maintain social presence than the design of the initial lecture or presentation. Though engagement opportunities were available throughout the course, the intentionality of promoting social presence through the initial presentation of information may not be as significant compared to the opportunities provided for engagement and learning throughout each week.

It is worth noting that graduate-level students tend to be highly committed in their learning experiences despite potential limitations they encounter. Although time management or time constraints, an unexpected theme that emerged, could potentially hinder the success of learning, the researchers did not find any evidence of this in participant responses. A valuable next step to further this line of research would be to investigate the point at which students' levels of commitment are offset by course constraints that could potentially be insurmountable (time, schedule, design, etc.).

Additionally, there are several other limitations to this study. Further exploration resulting from the findings of this study is needed for generalization. For example, participants of this study are graduate level students and therefore undergraduate students may have different needs in terms of how they benefit from different modalities of learning. Undergraduate students who lack metacognitive experiences may not be able to effectively articulate how they learn best. Additionally, the study did not intentionally measure social presence as a construct but rather focused on perceived participant engagement and learning of the content. Another limitation of this study related to controlling for students' ability to interact with one another prior to the courses taught. Students' previous experiences with both the instructors and their peers varied. In some cases, students had not met their peers in prior courses, while in other instances, students had previously taken courses with the peers in their classes and/or with the instructor. This may have impacted their readiness to interact with their peers. Another limitation included the ongoing "testing" threat to internal validity that may have occurred (Gall et al., 2007). Students were being prompted to reflect on their levels of learning and engagement through completing the surveys weekly. It is possible that this self-reflective activity itself could have increased their levels of learning and engagement apart from the methods chosen.

Conclusion

Several conclusions can be drawn from the findings of this study. It is important to consider best practices for online learning by considering the needs of the autonomous adult learner. In this landscape of online or hybrid learning, course designers must remember that adult as self-directed learner ought to be able to have the autonomy to weigh the benefits of synchronous meetings and social interactions with what works best for them to maximize their learning and engagement, given their life circumstances. Integrating high levels of student choice in activities within the well-designed online course is essential. Considering learner-content, learner-instructor, and learner-learner (Moore, 1993) strategies to engage students is not innovative in and of itself, however, the findings in this current study are a stark reminder that enabling the self-directed learner to choose how they experience these three facets of an online course allow for higher levels of engagement and learning.

One must consider the holistic experiences that a student has within a course, whether it is fully online or hybrid. Designing highly engaging activities during the initial presentation of material is one element to consider within the larger scope of an effective online learning design that contributes to the holistic learner experience. Kebritchi et al., (2017) discussed the importance of considering andragogy when designing online learning experiences by integrating a combination of learner-centered activities such as collaboration, reflection, and other meaningful course content. Based on findings from this current study, it is important to recognize that adult learners should be given some autonomy to choose the method(s) of learning. Given this autonomy, adult learners may still feel highly engaged in the course content despite choosing to engage in the course content asynchronously.

Further investigation into understanding how gender, race and other equity-based barriers and opportunities influence learners' choices will continue to be a promising area of future research as more universities continue to offer online learning. It is imperative to consider how course designers create equitable yet varied learning experiences and engagement in educational landscapes that promote high rigor and access for all students.

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Declarations

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Manuscripts reporting studies involving human participants, human data or human tissue must: IRB approval for this study was granted on March 6, 2019 by Seattle Pacific University's IRB coordinator. Reference # 181906006.

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